

ULTRA-THIN FULLY DEPLETED SOI DEVICE AND METHOD OF FABRICATION

ABSTRACT OF THE DISCLOSURE

A fully depleted SOI FET and methods of formation are disclosed. The FET includes a layer of semiconductor material disposed over an insulating layer, the insulating layer disposed over a semiconductor substrate. A source, a drain and a body disposed between the source and the drain are formed from the layer of semiconductor material. The layer of semiconductor material is etched such that a thickness of the body is less than a thickness of the source and the drain and such that a recess is formed in the layer of semiconductor material over the body. A gate is formed at least in part in the recess. The gate defines a channel in the body and includes a gate electrode spaced apart from the body by a high-K gate dielectric.

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